APPENDIX L

EHS Five-Year Environmental Plan

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Environmental, Health & Safety

Five Year Plan

1991 - 1995

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PHILIP MORRIS USA
E,H&S PLAN : 1991-1995

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OVERVIEW

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EXPLANATION OF RESPONSIBILITY

Abbreviation:	Department:
• EEP	Employee & Environmental Protection
• ENG	Engineering
• FAC	Facility
• FIN	Finance
• IS	Information Services
• LEGAL	Legal (NY Legal or Hunton & Williams)
• MED	Medical
• PA	Pesticide Administrator (QA)
• PUR	Purchasing
• QA	Quality Assurance
• R&D	Research & Development
• RSC	Radiation Safety Committee
• RSO	Radiation Safety Officer (QA)
• SEC	Security
• TRANS	Transportation

For each **Action Plan** listed, primary responsibility is assigned by department(s) or in special cases by title. It is recognized that for many **Action Plans** several departments may require involvement; however, only those groups with responsibility for coordination are included. If more than one department is listed, the first department has overall coordinating responsibility.

Action Plans assigned to FAC (facility) apply to specific facilities, if applicable, and should be included in the facility's Five Year Plan.

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AIR ISSUES

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AIR - COMBUSTION SOURCES & SO2/NOX

Issues:

- EPA has promulgated regulations to restrict the amount of sulfur dioxide (SO2) and nitrogen oxides (NOX) that can be emitted from new boilers. Fuels with lower sulfur content are being required to meet emission limits.
- NOX contributes to the formation of lower level ozone (smog) in urban areas. SO2 contributes to the formation of *Acid Rain*.

Strategy:

- Secure cleaner fuel sources at reasonable cost: Bring natural gas to boilers; negotiate for low sulfur oil.
- Be prepared to institute SO2 controls: Construct and operate SO2 scrubbers; install flue gas desulfurization.
- Be prepared to institute NOX controls: Install low NOX burners; install ammonia injection into flue gas.
- Ensure compliance with air permits for proper sulfur content of fuels.

Action Plans:	Responsibility:
1. Investigate the availability (short and long term) of an uninterruptible supply of natural gas.	PUR
2. Prepare preliminary design and cost data on equipping boilers for natural gas operation if availability is confirmed.	ENG
3. Investigate the feasibility of purchasing steam from a cogeneration facility to reduce environmental liabilities of boiler operations.	ENG
4. Prepare preliminary designs and costs on equipping boilers with low NOX burners and ammonia injection into flue gases.	ENG
5. Audit purchase of fuels to ensure proper sulfur content per air permits.	EEP

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AIR - PM-10 PARTICULATES

Issues:

- EPA has changed the definition of Particulate Matter (*PM*) to include smaller particles. This definition, which is referred to as *PM10*, includes particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
- At this time all particulate emissions are assumed to be *PM10* unless testing data demonstrates otherwise.
- As EPA and the states gain experience in estimating *PM10* emissions, more restrictive controls could be required.

Strategy:

- Identify particulate sources and assess particulate size distribution. Use this data to assess the impact on new emission points.

Action Plans:	Responsibility:
1. Identify all sources of particulate emission.	EEP
2. Measure size and quantity from a representative sampling of systems at each location to determine potential impact.	EEP
3. Evaluate dust collection technology for efficiency in the capture of particulates. Prepare preliminary design and cost estimates to upgrade control equipment to meet new regulations.	ENG/EEP

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AIR - POLLUTANTS AND THE UPPER ATMOSPHERE

Issues:

- Scientists believe that depletion of the upper ozone layer will cause increased health risks.
- Chlorofluorocarbons (CFC's) emitted from manufacturing processes are targeted for reductions in order to protect the upper ozone layer (*Montreal Protocol*).
- Carbon dioxide (CO2) emissions are believed to be contributing to the *Greenhouse Effect* (e.g., a gradual global warming). EPA is looking at CO2 emissions and assessing the need for control.
- PM USA directly emits large amounts of carbon dioxide to the atmosphere from manufacturing and fuel burning processes, and indirectly emits CFC's from air handling equipment and fire suppression systems.

Strategy:

- Minimize carbon dioxide and CFC emissions (e.g., reclaim, reuse, reduce or modify processes).
- Plan for the eventual elimination of CFC's based on vendor substitution.

Action Plans:	Responsibility:
1. Identify and quantify emissions.	EEP
2. Monitor the availability of current CFC's and susbstitutes as well as pricing trends for each.	ENG
3. Determine the impact of refrigeration capacity if refrigerants with lower performance ratings will be required.	ENG/FAC
4. Evaluate operating, maintenance and cost impacts of changes in refrigeration technologies.	ENG
5. Identify potential CFC recycling vendors. Approve vendors and methods of recycling.	EEP/ENG
6. Evaluate methods for CO2 control or recovery from process discharges, and impact on operation, maintenance and cost. Determine cost per pound and % of recovery.	ENG

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AIR - TOXIC AIR EMISSIONS

Issues:

- Congress will require the control of toxic air emissions through amendments to the Clean Air Act. Kentucky, Virginia and North Carolina already have toxic emission regulations.
- Public awareness to air toxic emissions is increasing due to Community Right-To-Know reporting and media disclosure.
- Emissions that may require further control include: phosphine (warehouse fumigation), nicotine, and ammonia.

Strategy:

- Assess compliance with state standards through scientific analysis of emissions and act upon this assessment.
- Reduce and gradually eliminate phosphine emissions from warehouse fumigations.

Action Plans:	Responsibility:
1. Identify and quantify emissions, to include computer modeling.	EEP/FAC
2. Investigate and estimate the cost to reduce emissions based on regulations and modeling.	ENG/EEP
3. Research the degradation of identified emissions to better define levels at the fenceline.	R&D
4. Evaluate the use of activated charcoal adsorption systems to clear fumigated warehouses.	ENG
5. Work with Tobacco Stabilization Corp. for the technical review of emissions computer modeling during fumigation aeration.	R&D
6. Reduce the amount of phosphine used to fumigate warehouses based on historical data.	QA/R&D
7. Install systems to treat tobacco with Kabat, thereby reducing fumigation of tobacco warehouses.	ENG
8. Implement further tocacco treatment with Kabat.	QA/R&D

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AIR - VOC EMISSIONS

Issues:

- Volatile Organic Compound (VOC) emissions contribute to the formation of lower level ozone (smog).
- EPA is exerting greater presssure on the states to develop control strategies to reduce VOC emissions, especially in major urban areas (e.g., Richmond, Charlotte and Louisville).
- States have no choice but to control existing emitters of VOC's and to restrict any new emission sources.
- New emissions of VOC's will not be allowed in urban areas, unless there is a 120% reduction of emissions somewhere in the area to offset any new emissions.
- VOC offsets and reductions could affect manufacturing flexibility and the introduction of new products or processes.
- The definition of VOC is being expanded by EPA to regulate a broad range of substances. Ethanol, propylene glycol and glycerin are considered VOC's.
- PM USA has entered into consent agreements with the Virginia Air Board to control VOC (ethanol) emissions from Richmond factories and Colonial Heights Packaging.

Strategy:

- Reduce VOC emissions through control technologies and process changes.
- Develop plans to reduce or control VOC emissions beyond what is currently required by the states.
- Comply with consent agreements.

Action Plans:	Responsibility:
1. Identify and quantify emissions.	EEP/FAC
2. Research the best technologies for VOC control. Install appropriate controls for VOC emission reductions at Richmond facilities.	ENG/FAC
3. Upgrade exhaust and incineration systems at Colonial Heights Packaging to reduce emissions.	ENG/FAC
4. Continue research on processes which will allow reduction in current VOC use.	R&D
5. Develop mechanism to coordinate research activities with other functions to discuss process or raw material changes to reduce VOC emissions.	R&D

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WATER ISSUES

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WATER - PHOSPHORUS & NITROGEN REDUCTIONS

Issues:

- EPA has given the states broad powers to control the discharge of nutrients like phosphorus and nitrogen.
- In 1988, Virginia banned the sale and use of phosphate detergents.
- In 1989, Virginia passed a phosphorus reduction regulation requiring all discharges over 1 million gallons per day to reduce phosphorus to 2 parts per million. Park 500 is covered by this regulation.
- Virginia is also seriously considering regulating the discharge of nitrogen compounds. Ammonia, which contains nitrogen, is already regulated as a toxic pollutant.
- Both Park 500 and the Blended Leaf Plant discharge significant quantities of phosphorus and nitrogen.

Strategy:

- Reduce the phosphorus discharges at Park 500 to meet state standards.
- Study BL Plant and Park 500 process discharges, review available treatment methods and report on the feasibility and economies of further reducing phosphorus and nitrogen discharges.

Action Plans:	Responsibility:
1. Upgrade the Park 500 wastewater treatment plant to remove phosphorus.	FAC/ENG
2. Install a biological nitrogen removal *pilot plant* at Park 500.	FAC/ENG
3. Evaluate pre-treatment systems for BL Plant.	FAC/ENG

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WATER - STORM WATER DISCHARGE PERMITS

Issues:

- The Clean Water Act requires the EPA to issue permits for all discharges of pollutants; however, the EPA opted not to include storm water discharges in the permitting process.
- Environmental groups successfully sued the EPA to require permits for storm water run off from industries and municipalities.
- The deadline for applying for storm water permits has passed but EPA has not yet published regulations or application forms for these new permits.

Strategy:

- Comply with regulations when they are promulgated.

Action Plans:	Responsibility:
1. Identify all storm water discharge points that will require a permit.	EEP/FAC
2. Develop specific plan when final EPA rule is issued.	EEP

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WATER - UNDERGROUND STORAGE TANKS

Issues:

- EPA and the states have issued new underground storage tank (UST) regulations requiring corrosion protection, spill and overflow prevention, and leak detection for all UST's.
- Prior to implementation of the new regulation 15 tanks were removed and replaced; however, there are still 7 old UST's remaining.
- Leaking tanks must be prevented—clean up of an UST spill is very expensive.

Strategy:

- Continue to upgrade or replace UST's at all locations.
- Replace UST's with aboveground tanks where feasible.
- Ensure that procedures for operation, maintenance, leak monitoring and spill prevention of new and existing UST's are maintained.

Action Plans:	Responsibility:
1. Develop a PM USA Tank Management Plan.	EEP
2. Remove and/or replace old UST's with above ground tanks or UST's that meet new standard.	FAC
3. Implement leak detection and UST maintenance program for all underground tanks.	FAC
4. Develop Spill Prevention Plans (SPCC) for all new above ground tanks.	EEP/FAC

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WASTE ISSUES

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WASTE - BURNING USED OIL

Issues:

- PM USA pays waste oil recyclers to dispose of waste oil. In addition to the cost, there is potential liability if the vendor mixes our waste oil with other wastes that might contain hazardous materials.

Strategy:

- As allowed and permitted under state air pollution regulations, burn used oil.

Action Plans:	Responsibility:
1. Identify sources and quantities of waste oil.	FAC/EEP
2. Determine most viable location(s) for burning oil.	FAC/EEP
3. Construct waste oil storage facilities.	FAC
4. Establish procedures for routine testing, collection, transport and audit.	EEP

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WASTE - HAZARDOUS WASTE MANAGEMENT

Issues:

- Hazardous materials, as defined by the EPA, are banned from all *municipal* landfills. These materials can be disposed of in *hazardous waste* landfills if they meet new treatment standards. However, industry is faced with the following:

  - Some treatment standards are too restrictive and unattainable.
  - Hazardous waste landfills are scarce and filling to capacity.
  - Most, if not all, of these landfills have contamination problems.
  - The few states with hazardous waste landfills are trying to restrict wastes from other states.

- The only viable option for disposal of some types of hazardous waste is incineration at permitted hazardous waste facilities; however, the ash resulting from incineration is also a concern if it contains certain toxic materials. Landfilling the ash may become more restrictive. Disposal costs are steadily increasing and reputable disposal facilities are becoming scarce.

- Most of our hazardous waste is generated in laboratories.

- Some wastes, such as tobacco dust mixed with sand or dirt, may at a later date be classified as hazardous.

- Waste generated by contractors performing PM USA work pose potential liabilities.

Strategy:

- Reduce the quantity of hazardous wastes.

- Increase disposal fexibility while reducing potential liability for illegal or improper disposal.

- Control contractor generated hazardous waste.

Action Plans:	Responsibility:
1. Develop and maintain a tracking system and database of hazardous waste generated and disposal sites.	EEP/IS
2. Expand the list of approved hazardous waste disposal facilities to be able to get competitive pricing.	EEP
3. Continue to audit all disposal facilities for compliance.	EEP
4. Evaluate laboratory testing procedures to find ways to substitute hazardous with non-hazardous materials, and thus minimizing hazardous waste generation.	R&D

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WASTE - HAZARDOUS WASTE MANAGEMENT *(continued)*

Action Plans:	Responsibility:
5. Implement the R&D waste control program in the QA laboratories.	R&D/QA
6. Evaluate methods to remove sand from tobacco prior to processing.	R&D
7. Develop and implement a pre-treatment system to dispose of process waste at Bermuda Hundred.	ENG/R&D
8. Establish procedures to properly manage and dispose of contractor-generated hazardous waste.	EEP/PUR

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WASTE - SOLID WASTE MINIMIZATION

Issues:

- Federal, state and local laws and regulations are mandating solid waste minimization and recycling as existing landfills are rapidly filling to capacity and new landfills are costly to develop and operate.
- EPA has set a national goal to reduce the nation's municipal wastes 25% by 1992.
- States are beginning to legislate landfill reductions for local governments. Virginia and North Carolina are legislating increases in *recycling* (Virginia—25% by 1995, North Carolina—25% by 1993, Kentucky—no activity at this time.) In Virginia, cities and counties must submit comprehensive waste minimization plans by July 1991.
- PM USA generates approximately 59,100 tons of solid waste annually: 69% is mixed waste and 31% is process waste.
- Currently, 16% of mixed waste is recycled, with a total recycle potential of 65%. 3% of the process waste is recycled, with a total recycle potential of 50%.
- Some wastes may be considered proprietary materials thus requiring special handling or exclusion from recycling and other minimization efforts.

Strategy:

- Develop a coordinated solid waste minimization program with emphasis on *recycling* and *source reduction*.
- By 1992, recycle 65% of the mixed waste with an emphasis on paper waste.
- By 1992, recycle 50% of the process waste with an emphasis on waste sludge.
- Increase the use of recycled materials in all appropriate areas of the business (e.g., office/administrative areas).

Action Plans:	Responsibility:
1. Prepare a written, integrated PM USA Solid Waste Management Plan. Assign overall coordination to EEP.	EEP
2. Develop and maintain a tracking system and database for all solid waste streams.	EEP/IS
3. Identify individual(s) within each facility as focal points for communication, reporting and results.	EEP
4. Identify sensitive components for exclusion from this activity, or for special handling [e.g., proprietary materials].	R&D

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WASTE - SOLID WASTE MINIMIZATION *(continued)*

Actions Plans:	Responsibility:
5. Negotiate a contract to implement a material recycling facility, for recycling approximately 65% of mixed solid waste.	EEP/PUR
6. Develop appropriate employee awareness programs to support the material recycling concept.	EEP
7. Establish criteria to purchase recycled materials. Identify applications for recyclables and test them.	PUR/EEP
8. Develop methods for disposal of Park 500 sludge.	ENG
9. Study methods to reuse or minimize generation of sand from stemming.	EEP/ENG
10. Study uses for flyash.	ENG
11. Review processes to identify potential source reductions.	FAC/ENG

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WASTE - SUPERFUND SITES

Issues:

- The Superfund law (CERCLA) allows the EPA to collect the entire cost of cleaning up a toxic dump site from anyone who contributed to the site.
- Many old, legally permitted disposal sites are becoming Superfund sites as the EPA identifies problems at them.
- In the last year, PM USA has been notified of two Superfund sites which may contain PM materials.
- Other PM companies are also involved in Superfund sites (estimated at 50).

Strategy:

- Ensure today's disposal sites do not become tomorrow's Superfund sites.
- Monitor status of disposal sites currently being used to assess any changes in their regulatory status.

Action Plans:	Responsibility:
1. Annually review each disposal site used and assess regulatory status. If a site closes, evaluate potential impact on company.	EEP/LEGAL
2. Continue auditing and approving all disposal sites prior to using them.	EEP
3. Work with other operating companies to coordinate sites where more than one operating company is involved.	EEP/LEGAL

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HAZARDOUS MATERIALS ISSUES

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HAZARDOUS MATERIALS - ASBESTOS

Issues:

- OSHA standards regulating asbestos exposures were recently reduced from 2.0 fibers per cubic centimeter (f/cc) of air to 0.2 f/cc. There is a new proposal to lower the limits even further.
- Asbestos is also regulated by the EPA and several state agencies. This creates difficulties for compliance efforts since industry must deal with several agencies which have different, and at times conflicting, agendas.
- Since 1981, PM USA has managed asbestos and removed it as needed through the use of contractors. No comprehensive plan budgeting for all removal has been implemented.
- Asbestos is encapsulated throughout all facilities; however, inadvertent release and potential product contamination is a possibility.

Strategy:

- Remove the remaining asbestos from all facilities.
- Ensure that all asbestos sites are identified and clearly marked until removal is complete.

Action Plans:	Responsibility:
1. Develop plant specific plans to identify and mark the remaining asbestos, determine the cost of removal, and establish a schedule for removal.	FAC
2. Establish a special expense account to track and budget for removal costs.	FIN
3. Monitor and document removal projects.	EEP

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HAZARDOUS MATERIALS - CHEMICAL HYGIENE PLAN *(LABORATORIES)*

Issues:

- OSHA has promulgated a new standard entitled *Occupational Exposures to Hazardous Chemicals in Laboratories*.
- The standard requires that a written Chemical Hygiene Plan be prepared and implemented for all laboratories by January 31, 1991.
- R&D and QA labs are affected by this standard.
- PM USA laboratories currently maintain programs that are considered part of this compliance requirement.

Strategy:

- Comply with the standard by developing a Chemical Hygiene Plan, incorporating existing programs.

Action Plans:	Responsibility:
1. Identify all laboratories that are affected.	EEP
2. Write PM USA Chemical Hygiene Plan.	EEP/R&D/QA
3. Update lab designs and equipment to meet requirements, if required.	FAC
4. Review laboratory job procedures for completeness and protective equipment. Update or develop as required.	FAC
5. Develop training program for current employees, as well as for new or transferred employees.	EEP
6. Establish mechanism for identifying new or transferred employees.	EEP/IS
7. Conduct training company-wide.	EEP/FAC
8. Audit compliance.	EEP

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HAZARDOUS MATERIALS - CHEMICAL INVENTORY MANAGEMENT *(RIGHT-TO-KNOW)*

Issues:

- Regulations require that inventories be maintained of chemicals used throughout all facilties:
  - OSHA requires that a current inventory of all hazardous chemicals known to be present in each facility must be compiled, maintained and made available to employees.
  - EPA requires that a current hazardous chemical inventory be prepared for emergency planning and community right-to-know, and that certain materials be reported to various state and local officials, as well as the EPA.
  - Virginia Health Department requires annual chemical inventory reporting of substances used as raw materials, catalysts, final products or process solvents.
- Maintaining inventories is labor intensive and is often out-of-date as soon as it is completed. It is estimated that 3,000 distinct chemicals in over 6,000 container types and storage locations must be tracked. The labor to maintain this effort is estimated to cost about $360,000 per year.
- Different chemicals are often purchased for the same type of job, thus increasing the inventory of distinct chemicals which must be tracked and reported.
- Accuracy of these inventories is extremely important to ensure that materials are not under or over reported. Unfortunately, the current method is inaccurate and labor intensive, thus maintaining compliance is quite difficult. Over the last 16 months there has been 5 instances where information was needed but could not be immediately located.
- A mainframe computer program (*Chemical Inventory Subsystem—CISS*) is maintained to manage all the reporting requirments—this program works. The primary issue is obtaining the information which goes into the system.
- Contractors are required to notify PM USA of materials brought onto PM property; however, this is often not done.

Strategy:

- Computerize the process of tracking, linking it to the *CISS*.
- Minimize the purchase of different chemicals for the same job.
- Control the use of chemicals by contractors working on PM property.

Action Plans:	Responsibility:
1. Define specific requirements to automate a tracking system.	EEP

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HAZARDOUS MATERIALS - CHEMICAL INVENTORY MANAGEMENT *(RIGHT-TO-KNOW) (continued)*

Action Plans:	Responsibility:
2. Define current computerized company systems, assess linkage and conduct feasibility study based on system requirements.	IS
3. Develop a tracking system based on the feasibility study.	IS
4. Review the purchase of chemicals and set a company policy to control redundancy and duplication.	PUR
5. Develop better controls for contractors to ensure review of their materials.	PUR/EEP

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HAZARDOUS MATERIALS - HVAC/BOILER SYSTEM WATER TREATMENT

Issues:

- Hazardous materials must be used to maintain and operate HVAC systems.
- Microbial activity in HVAC systems must be controlled to prevent the onset of illnesses.

Strategy:

- Operate and maintain HVAC systems to minimize employee exposure to water treatment chemicals and microbial activity.

Action Plans:	Responsibility:
1. Investigate different methods of filtration of washer air streams that would reduce biocide requirements.	ENG
2. Identify systems where water volume reductions may be made without interfering with equipment performance.	ENG/FAC
3. Identify systems where bulk or mini-bulk systems may be used to reduce the number of pumping stations.	ENG/FAC
4. Evaluate new biocides, polymers and bio-rational techniques which may be substituted for current biocides.	QA
5. Evaluate water side filtration for dust and microbial removal.	ENG
6. Develop products and techniques to remove microbial masses from HVAC systems during manual cleaning.	ENG
7. Restrict the use of compressed air in clean-up of tobacco dust or turn off washer air intakes during cleaning.	FAC

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HAZARDOUS MATERIALS - INDOOR AIR QUALITY

Issues:

- Exposure to chemicals in the workplace continues to be a major priority of OSHA.
- Some materials are not regulated, yet they can cause irritation in some individuals. Although these materials are not specifically regulated, OSHA can enforce compliance through the *General Duty Clause*. Menthol falls within this group.
- Extensive monitoring has taken place throughout PM facilities (approximately 4200 sample results to date); however, most of this monitoring has not been based on a planned schedule, but rather on an as needed basis.

Strategy:

- Monitor indoor air quality on a planned basis to ensure on-going OSHA compliance.
- Develop internal PM standards for materials that are not specifically regulated and which may cause irritation.

Action Plans:	Responsibility:
1. Identify materials that should be monitored on a planned basis, and establish a schedule.	EEP
2. Develop a mainframe based system for scheduling and tracking monitoring which interfaces with the current industrial hygiene data management system.	IS/EEP
3. Identify unregulated materials for which internal standards should be developed. Develop standards and include in plan.	EEP/R&D
4. Develop and implement exposure reduction plans based on environmental monitoring.	FAC/ENG/EEP
5. Investigate and mitigate any incident of sick building syndrome or employee illness.	EEP/ENG/FAC

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HAZARDOUS MATERIALS - PESTICIDE MANAGEMENT

Issues:

- There is a growing public concern about the practices of the pest control industry overall.
- The company must ensure that the use of pesticides does not draw unnecessary attention to the tobacco industry.

Strategy:

- Minimize the use of pesticides through improved sanitation practices, performing pesticide applications only when there is a documented need.
- Maintain a standardized and consistent approach to pesticide management to ensure employee and public safety.
- Investigate chemical pesticide alternatives.

Action Plans:	Responsibility:
1. Implement written, verifiable sanitation programs based on the PM USA *Infestation Control Manual*.	PA/R&D
2. Prepare and implement job procedures.	PA
3. Update annually the "acceptable pesticides" list.	R&D
4. Upgrade all pesticide storage facilities to include neutralization capabilities for containers and unused mixtures.	FAC
5. Apply pesticides according to a documented need and label restrictions; when sanitation efforts have failed or in areas inaccessible to cleaning.	QA
6. Develop a central tracking system for all pesticide purchases and usage.	PA/IS
7. Establish in-house training programs for all pesticide applicators and their supervision including state re-certification.	PA/EEP
8. Establish conditioning cycles for obtaining Phyto certificates and eliminate methyl bromide fumigations.	R&D

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Source: https://www.industrydocuments.ucsf.edu/docs/ngll0000

HAZARDOUS MATERIALS - RADIATION

Issues:

- PM uses radioactive sources, both licensed and non-licensed, as well as radiation producing equipment, such as x-rays. There continues to be a negative perception in the general public regarding the use and affects of radiation. Consumer products companies face the potential risk of negative publicity in the event of an incident involving a radioactive source or radiation generating device.
- As licensed materials, nuclear radiation sources, as found in nuclear gauges, are heavily regulated and require extensive recordkeeping to ensure compliance.
- Although nuclear gauges, using sealed radioactive sources, are reliable, safe and an accepted method for measurement, an incident involving these devices, even in a peripheral way, could cause negative publicity.
- Several radioactive devices containing Americium, such as smoke detectors or static eliminators, are distributed to consumers without a license. Because they are not controlled by strict licensing requirements at the user level, these devices are very easily discarded improperly in municipal landfills.

Strategy:

- Minimize the use of radioactive sources and devices wherever possible. Investigate alternatives.
- Strictly control the use and disposal of all radioactive sources, both licensed and non-licensed.
- Ensure that all employees are adequately trained in the proper use and control of radioactive sources and radiation producing devices.

Action Plans:	Responsibility:
1. Evaluate alternatives to all forms of radiation.	ENG/RSO
2. Determine if present source strength could be decreased (newer technology).	ENG/RSO
3. Continue to audit user group compliance to the present Radiation Safety Program.	RSO/QA
4. Examine methods to improve the Radiation Safety Program to further minimize the potential liabilities.	RSO/QA
5. Continue to require that all PM employees working with either nuclear devices or x-ray equipment receive *documented* training and certification for performing their assigned jobs.	RSC

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HAZARDOUS MATERIALS - RADIATION *(continued)*

Action Plans:	Responsibility:
6. Establish formal procedures to ensure that non-licensed devices are disposed of through vendors. Audit compliance, internally and vendor.	RSO
7. Upgrade present system for mailroom security to minimize employee exposure.	SEC

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HAZARDOUS MATERIALS - TRANSPORTATION OF HAZARDOUS MATERIALS *(DOT)*

Issues:

- PM USA ships, both domestically and internationally, materials that are regulated as *hazardous*.
- Major changes to the US Department of Transportation (DOT) regulations have been proposed which will change the shipping nomenclature to international standards.
- Effective January 1, 1991, all international shipments must be packaged in containers meeting international performance standards.
- New DOT regulations require 24 hour emergency telephone numbers and spill response information with every shipment of hazardous materials.
- Because every facility ships hazardous materials, coordination or control of these activities is essential.
- There has been confusion as to the responsibilities of PM USA and PM International regarding international shipments of flavors originating in Richmond.

Strategy:

- Comply with all domestic and international shipping regulations. Ensure the safety of employees, carriers and the public.
- Ensure that PM USA has advanced warning of proposed changes to transportation regulations, and appropriately plans for their implementation.
- Improve communications, training and coordination for personnel involved in shipping hazardous materials, including PM International. Ensure coordination through EEP.

Action Plans:	Responsibility:
1. Prepare a PM USA transportation policy and procedure. Establish overall coordination and responsibility.	EEP/LEGAL
2. Establish PM standardized shipping papers for *all* transportation of hazardous materials.	EEP
3. Identify functional groups or individuals with transportation responsibilities, and provide on-going DOT training, to include new employee courses, on the job training using job procedures, and advanced or specialized seminars.	EEP
4. Establish a task group to review and plan for performance packaging standards.	EEP/TRANS

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EMPLOYEE SAFETY & HEALTH ISSUES

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EMPLOYEE SAFETY & HEALTH - ERGONOMICS

Issues:

- OSHA is seriously assessing workplace injuries and illnesses resulting from cumulative trauma and repetitive motion. Labor unions are also pushing for action in this area. The result: ergonomic regulations will be promulgated.
- With the rapid growth in the use of personal computers, many workstations are improperly designed. Video display terminals (VDT) and keyboards are placed on existing equipment designed for typewriters, but not for computers.
- With technological advancements in manufacturing, equipment, buttons, switches and gauges are being replaced by visual displays, touch screen communications and software controls. These innovations are only as reliable as the employee's ability to rapidly recognize and properly respond to control the desired parameters. New job functions can create new physical stresses.
- Material handling related injuries continue to be a major category of injuries.

Strategy:

- Resolve the question: To what extent are PM USA employees experiencing ergonomically-related injuries or illnesses?
- Prevent ergonomic injuries or illnesses through workplace and equipment design.

Action Plans:	Responsibility:
1. Review injury and illness record to define ergonomic related cases.	EEP
2. Based on the review develop an overall ergonomic plan to focus resources on potential problems areas.	EEP
3. Develop specific criteria for workplace and equipment ergonomic design.	EEP/ENG
4. Establish vendor specifications and implement with vendors.	EEP/PUR

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Source: https://www.industrydocuments.ucsf.edu/docs/ngll0000

EMPLOYEE SAFETY & HEALTH - WORKERS' COMPENSATION

Issues:

- The cost of medical treatment for injured workers continues to rise.
- The severity of workplace injuries, *as measured by days away from work*, has been gradually increasing for PM USA, inspite of a downward trend for the frequency of injuries.
- The increase in severity began with the elimination of on-site company doctors and the reliance on outside physician services. Historically, outside physicians tend to keep workers off the job longer. Utilizing a company physician as liaison with local physicians is an essential element to controlling disability management.
- Disability management continues to be a priority; however, there is no mechanism in place to track the type of treatment, length of disability and associated cost on a *physician by physician basis*. This information is necessary to ensure quality at a reasonable cost through the selection of physicians who understand the industrial environment and are willing to work with industry.

Strategy:

- Reverse the trend—reduce the severity of injuries by tracking physician services and cost, selecting physicians for referral based on PM USA expectations and improve relations with local physicians.
- Reassess on-site physician coverage. Maintain a physician liaison between the company and local physicians.

Action Plans:	Responsibility:
1. Review the existing Claims, Medical and Hartford Insurance computer systems and develop method to track (or extract) appropriate data.	IS/EEP/MED
2. Develop criteria for reviewing physician services and rating on quality of service and cost based on type of injury and treatment.	MED/EEP
3. Review the Panel of Physicians quarterly in light of the data and adjust accordingly.	EEP/MED
4. Maintain a physician liaison.	MED

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ENVIRONMENTAL, HEALTH & SAFETY

- GENERAL ISSUES -

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Source: https://www.industrydocuments.ucsf.edu/docs/ngll0000

ENVIRONMENTAL, HEALTH & SAFETY - AUDITS

Issues:

- The stakes are increasing for non-compliance with environmental, and occupational safety and health regulations. EPA and OSHA fines can exceed a million dollars depending on the type of violation. For OSHA violations willful acts can result in *egregious* penalties.
- Violations can result in civil and criminal action. Virginia OSHA recently developed procedures for notifying the State Attorney General's office of criminal actions.
- Violations of regulations receive much press coverage.
- Violations can result in consent agreements which may not be to the benefit of the company.
- There have been efforts to standardize compliance efforts at all facilities, but there is no mechanism to ensure that all are following the plans or procedures.

Strategy:

- Conduct more frequent and cost effective audits.

Action Plans:	Responsibility:
1. Develop and implement a PM USA Environmental, Health and Safety Audit Plan for all facilities, to be conducted annually. [evaluate the need for outside services based on resources]	EEP/LEGAL
2. Develop and maintain a computerized database to track audit results and corrective action. Assess portable data collection terminals linked to PC based system.	IS/EEP

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Source: https://www.industrydocuments.ucsf.edu/docs/ngll0000

ENVIRONMENTAL, HEALTH & SAFETY - EMERGENCY MANAGEMENT PLAN

Issues:

- EPA, OSHA and DOT are all placing more emphasis on emergency planning and response, particularly for hazardous material spills and releases.
- OSHA recently issued a new standard entitled *Hazardous Waste Operators and Emergency Response*, which requires a written plan along with extensive training, both initially and annually, for emergency responders.
- Community Right-To-Know initiatives by EPA have created a heightened awareness on the part of the public and the media whenever an emergency occurs involving a hazardous material, regardless of the magnitude of the incident.
- DOT recently enacted regulations requiring emergency hazard information to be available to the shipper for the shipment of all hazardous materials.
- Local fire departments are requiring more pre-planning on the part of industry located in their area, with special emphasis on hazardous materials.
- PM USA first prepared a comprehensive written Emergency Management Plan (*EMP*) in 1983. This plan has been modified over the years to meet all the requirements of these regulations; however, the plan has not been fully implemented and maintained at all facilities.

Strategy:

- Maintain emergency management plans, providing the resources and training necessary to ensure that all types of emergency situations are handled properly, efficiently and in compliance with all appropriate regulations.

Action Plans:	Responsibility:
1. Complete and maintain the *EMP* for all facilities, with special emphasis on site specific plans.	FAC/EEP
2. Conduct initial and annual training.	EEP/FAC
3. Conduct pre-plans with Fire Departments.	FAC/EEP

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Source: https://www.industrydocuments.ucsf.edu/docs/ngll0000

ENVIRONMENTAL, HEALTH & SAFETY - TRAINING

Issues:

- Training required by OSHA, EPA and DOT regulations continues to increase in number and in complexity. Initial and annual re-training is often required which impacts all levels of personnel. Documentation is essential to prove compliance.
- To ensure that the appropriate personnel are trained at the proper frequency, identification of all training requirements and tracking of employees who are covered by these requirments are critical issues.
- The *HRIS* maintains historical training records by employee, if data is entered into the system. There is no system to identify individuals who should be trained and at what frequency, or to schedule these individuals for training.
- With the regulatory demands increasing, it is important to coordinate these training efforts to ensure consistent and timely training.
- Job procedures are a critical element of the training program. Managing the procedures is labor intensive.

Strategy:

- Comply with all regulatory training requirements, and ensure that training is coordinated, scheduled, documented and tracked.
- Incorporate job procedures into all training efforts.

Action Plans:	Responsibility:
1. Identify all regulated training, who is affected, and what resources will be required to maintain a training compliance effort.	EEP
2. Develop an *HRIS* scheduling and tracking system, which identifies the required training, frequency and individuals affected.	IS/EEP
3. Implement a scheduled training program.	ER
4. Complete and maintain the job procedure program, and integrate job procedures into all formal training.	ER/FAC
5. Implement a network image processing system for job procedures.	IS/EEP

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